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OF PLANT PROTECTION

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DISCOVERIES AND CURRENT EVENTS *

French North Africa: The Desert Locust (*Schistocerca gregaria*) (1).

ALGERIA.

A swarm coming from the S. settled during the night of the 3rd to 4th February 1934 22 km from Sfissifa, annex of Aïn-Sefra.

On 4 February a large dark red swarm coming from the S. settled at Hassi Sahan, 50 km N. E. of Ouargla, and departed flying N.

On the 6th a dark red swarm coming from the S. E. settled at 12 noon on 12 km between Bordj Lutaud and Aïn-Zaouïa to the E. of Ouargla. At 4 p. m. it flew away in a N. W. direction.

A large swarm coming from the S. settled at Hassi Matmat, 80 km S. of Touggourt.

On the 25th a large swarm coming from the S. E. settled at Sil el Youdi, 25 km W. of El Oued. It flew N. E. on the 26th

A red swarm coming from the W. settled during the night of the 25th to 26th at Moghrar Foukani. It circled over the region on the 26th and 27th.

On the 26th a large dark red swarm coming from the W. settled in the evening at Oued Lachiackh, near Oued Chebeil, 45 km S. S. W. of Ghardaïa. Flew away N. in the evening.

On the 27th a large dark red swarm coming from the W. settled in the evening at Mahcer Echelif and El Besbassa, 40 km S. S. W. of Ghardaïa ; flew away towards the N. in the evening.

Red swarms reported in the Oued Touif between Saguist Ettgerik and Tsnaïa Elanz, 60 km S. S. W. of Ghardaïa.

MOROCCO.

On 1 February 1934 a pink swarm, 8 × 4 km, was reported to be settled in the Ida ou Gargane, civil control of the Haha Chiadma.

On the 4th a pink swarm, 8 × 4 km, settled at Tagauoaut, civil control of the Haha Chiadma.

On the 5th a swarm reported on the 29 and 30 January leaving the Ida ou Zem Zem, civil control of the Haha Chiadma, returned towards its point of departure.

* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from the Government General of Algeria (Direction des Services Economiques) to the International Institute of Agriculture.

On the 8th a red swarm with a few yellow individuals, coming from the S. E. settled at Imouchkaïm, civil control of the Haha Chiadma.

On the 12th a yellow swarm, 1.5 × 4 km, coming from the S. W. settled at Tlit, civil control of the Haha Chiadma, and flew away N. W. towards Tezril.

On the 15th a pink swarm, 5x 4 km, coming from the N. W. settled at Tidorine, civil control of the Haha Chiadma, and departed S. E.

On the 18th a swarm settled at Bou Tazert, civil control of the Haha Chiadma, flew N.

A swarm settled at the Ida ou Azza, civil control of the Haha Chiadma.

On the 21st a red swarm, 5 × km, was reported to be settled in the dunes of Mogador.

On the 25th a large swarm settled in the dunes of Mogador laid over 600 hectares.

French West Africa: The Desert Locust (*Schistocerca gregaria*) in Mauritania (1).

On 2 February 1934 a dark red swarm coming from the W. passed at 5.30 p. m. at Akjoujt flying E.

On the 3rd a sparse dark red swarm passed Akjoujt from 12.30 to 1.30 p. m.

On the 6th a sparse dark red swarm coming from the S. settled at 3 a. m. close to Akjoujt. At 6 p. m. it flew away N.

Eritrea: Locusts (2).

During February 1934 no locust swarms, eggs or hoppers were reported in the Colony.

United States of America: Bacterial Wilt of Maize (3).

Bacterial wilt (caused by *Aplanobacter stewartii* [E. F. S.] McC.) of Maize (Indian corn) was again very severe in 1933. In certain important respects, however, the outbreak of this year differs from other recent years during which the disease was also severe. Outstanding characteristics of the disease in 1933 are :—

The farthest north range yet recorded in the United States of America.

High percentage of infection early in the season followed by an apparent decline in severity.

(1) Communication from the Government General of Algeria (Direction des Services Economiques) to the International Institute of Agriculture.

(2) Communication from Dr. Luigi Massa, Acting Chief of the Agricultural Office of Eritrea, transmitted to the Institute by the Government of the Colony.

(3) Communication from the official correspondent of the Institute, Dr. Neil E. Stevens, Senior Pathologist, Plant Disease Survey, Bureau of Plant Industry, United States Department of Agriculture, Washington.

Very great losses in susceptible varieties, especially in the early plantings.

Average loss in certain important sweet corn producing States less than last year, due apparently in part at least to the very rapid replacement of the most susceptible sorts by less susceptible varieties, strains, and hybrids which, while sustaining severe losses under such incidence of disease as has been experienced this year, are markedly more resistant to bacterial wilt than those which they replace.

Northern distribution: Bacterial wilt was reported from 10 towns in Maine and from 8 towns in New Hampshire. These States are in the extreme northeastern corner of the United States and in neither had the disease been previously found.

In New York the disease was distinctly more general than last year. In 1932 the northern limits of the trouble seemed to be the southern tier of counties in the State. This year the disease was found fairly abundantly in the vicinity of Ithaca and other counties in that latitude. It occurred in Cayuga, Albany, and Schenectady counties, and in Cayuga did considerable damage in some fields of flint corn.

Early infections: Experienced observers in Massachusetts, Connecticut, New York, Pennsylvania, Ohio, Michigan, Indiana and Illinois report either that the disease appeared earlier in these States than during 1932 or that the early infections were more severe than in 1932.

Losses in susceptible varieties of early sweet corn. — Maine: Of outstanding importance in the two southern counties. 70 to 100 per cent. loss in some of the earliest plantings of sweet corn.

Connecticut: (June) Some fields showed 45 to 65 per cent. infection. (July) Loss from this disease in many cases 100 per cent.

New York: Caused greater loss than it did in 1932.

New Jersey: Loss 50 to 75 per cent. in individual fields of sweet corn.

Pennsylvania: Often running from 75 to as high as 100 per cent. infection, with all the plants killed before they were two feet high.

Illinois: 60 to 100 per cent. loss in individual fields.

Average losses compared with last year. — From the following States and observers come reports that total losses from bacterial wilt were on the average less than last year.

New Jersey (C. M. Haenseler): Total less than in 1931 or 1932.

Pennsylvania (R. S. Kirby): Average loss for the State in 1933, 30 per cent.; in 1932, 45 per cent.

Ohio (R. C. Thomas): Loss ⅓ less than last year.

Indiana (G. M. Smith): Loss 25 per cent less than last year.

It should be noted and it is probably significant that in the States here listed the disease was very serious as early as 1931 and growers have thus had two years for adjustment. The decrease in these four States in total loss in sweet corn despite the early incidence and in some cases increased prevalence of bacterial wilt is attributed by observers in all States in large part to the rapid replacement of the very susceptible early yellow sweet corns of the Golden Bantam type with the more resistant white sweet corns (as in Maryland and New Jersey) and with various more or less resistant yellow corns of which the recently developed Golden Cross Bantam is the most notable. Some observers also believe that during the latter part of the season the weather was less favourable to the disease than last year.

In general the severity of the disease on field corn seems to be increasing. Losses from 2 to 8 per cent. were recorded in various States.

Mozambique: Locust Movements (1).

Information relating to the first half of January 1934.

Cape Delgado District. — The direction followed by the swarms which invaded this district is as follows: the greater number cross the M'sale, follow the plateau of Macondes in a westerly direction and descend the valley of Rovuma, are reported at Naggando and then fly in the direction of Tanganyika. Other swarms descend by Ancuabe, then flying north. At the beginning of January 1934 the circumscription of Quissanga was invaded by swarms coming from the W. Another swarm was reported at Quiterajo. Ancuabe and Lurio were also invaded. Hoppers were reported at the post of Meloco. At Montepuez laying was several times reported and 2940 kg. of eggs were collected. The whole district may be regarded as invaded.

Nyassa District. — Locusts are still causing damage at Catur, Litunde, Mandimba and Metonia.

Mozambique District. — Further swarms were reported in the coastal circumscriptions, particularly at Moma and Nametil.

Tete District. — At Maravia new swarms coming from the W. destroyed the crops and deposited eggs. Hoppers are already being found. Very large swarms settled in the region of Chioco. A swarm was reported at the post of Mague. The whole of the banks of the Zambesi in the regions of Zumbo were invaded. Large swarms settled at Mancanga, destroying the crops.

Quelimane District. — Very large centres of hoppers continue to be reported in the circumscriptions of Lugela, Massingire and Alto Molocue.

(1) Communication from Mr. Julio Gardé Alfaro Cardoso, Chief of the Entomological Section of Lourenço Marques, transmitted to the Institute by the Administration of the Agricultural Services of the Colony.

The regions of Chinde, Anguage, Zambesi, Massingire, Milange and Pebane were invaded by new swarms coming mainly from Nyasaland and from the territory of the Mozambique Company, which devastated the plantations of coconut, maize, etc., both European and native. Various methods of control were tried to destroy the hoppers in their penultimate stage.

Inhambane District. — The circumscription of Vilanculos was invaded by swarms coming from the W. and N. which flew S. E. and caused serious damage. Throughout the region of Massinga locusts swarmed, flying in all directions ; one swarm of 15 sq. km. caused serious damage. At Morrumbene many maize crops were destroyed by swarms which crossed this circumscription in several directions and deposited eggs. Egg laying is now at an end and a large number of hoppers are already being found. At Homoine a swarm coming from the W. and N. and others coming from the S. E. and E. laid and destroyed various crops. The swarms flew away in southerly and easterly directions. Swarms coming from the W. settled at Jangamo and then flew N. E. The whole circumscription was invaded by locusts which had already reached the breeding stage. The losses caused were considerable. At Zavala similar conditions were reported. The whole district may be regarded as invaded by swarms coming from the W. and N., particularly towards the coast where there were heavy deposits of eggs and many crops were destroyed.

Lourenço Marques District. — Several swarms coming from the Transvaal penetrated into the circumscription of Guija. On 22 December 1933 a very large swarm was reported at Massingire, near the frontier, which flew E. On the 27th another swarm crossed the frontier and the plain of the Elefantes river and flew S. E.

On 4 January 1934 several swarms coming from the Transvaal penetrated into the district passing by Pafuri. The locusts settled on the banks of the Limpopo and laid eggs. In this region 1572 kg. of eggs were collected.

At Chibuto locust movements were also reported. Hoppers were found and a great quantity of eggs. At Manjacaze the conditions were similar. A swarm coming from the S., the passage of which lasted two days, devastated all the plantation. Hoppers were reported from Gaza. Similar reports came also from Bilene and Marracuene, where some hundreds of kilogrammes of eggs were collected.

In the circumscription of Maputo hoppers are already being found, a great number being reported in the Butchuine valley ; more than a ton of eggs was collected at this place.

In résumé it may be said that the whole distict is invaded. The total quantity of eggs collected amounted to about 10 tons and hoppers were found everywhere.

Several swarms were destroyed, but several others deposited eggs. It should be stated that all the swarms which invaded the district came from the Transvaal, Swasiland and Natal.

In the circumscriptions of Magude, Moamba, part of Maputo and Marracuene, Manhiça, Chibuto and Gaza gangs attempted to combat the pest. In the circumscription of Guija control was carried out by squads of soldiers.

As control measures sodium arsenite and metal barrages have been used. The latter system will be used even when the hoppers have reached a later stage of development. In the regions with a dry climate fire will also be used.

Southern Rhodesia: Locust Invasion, 1932-1934 (1).

Monthly Report No. 14, January, 1934.

Red Locust (*Nomadacris septemfasciata*).

Egg-laying by a few belated swarms is still proceeding at the end of the month. It is difficult to account for the presence of these winged swarms at this late date, in view of the general earlier development of the great majority of these locusts. The belated swarms are not confined to any particular part of the country, and have been reported from the eastern to the western borders, that is from the most humid zone to a semi-arid zone. The latest report of egg-laying refers to the Melsetter District.

All these belated swarms show the yellowish breeding coloration and are not moving far.

Hatchings of hoppers has continued throughout the month, every district in the colony having now reported their presence. As anticipated, the main hatchings occurred during the first half of the month. Certain areas have experienced very heavy hatchings. In others the hopper outbreak has been lighter than anticipated.

In some places where egg-laying has been light, hoppers apparently of the "solitary phase" have been found. These are light green in colour, even as early as in the second stage, with a black dorsal stripe and other black markings showing very distinctly. The band around the hind femur persists.

Damage to Crops.

In certain districts some loss of native crops from the hopper stage is reported. In individual cases European crops have been damaged, but such reports are exceptional and in general the farmers have been successful in defending their land from hoppers to date.

Maize, in certain districts has, however, suffered from the attack of the belated winged swarms, which appear to be feeding voraciously.

Isolated instances of serious attack by young hoppers on Cowpeas and Velvet Beans have been reported.

(1) Communication from the official correspondent of the Institute, Mr. Rupert W. Jack, F. E. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

Enemies.

Several reports have been received of good work against the hoppers by the White Bellied or Black Stork (*Abdimia abdimii*). In one case 100 acres of infested maize was reported as having been completely cleaned up by a large flock of these birds.

The White Stork (*Ciconia alba*) appears to have been little in evidence during the present season.

The Calliphorine fly (*Stomatorrhina lunata*) having apparently increased in numbers in the earlier egg deposits, has been responsible for a moderate amount of destruction amongst the later deposits. Three generations of this fly have been reared in the laboratory, the whole life cycle from egg to adult occupying from two to three weeks at this time of year.

Widespread parasitisation of winged locusts with a Red Mite has been noted, but the attack is not heavy and probably of little or no economic importance.

Tropical Migratory Locust (*Locusta migratoria migratorioides*).

This species has not been in evidence anywhere, but one fifth-stage hopper was received at the Laboratories near the end of the month. Adults of this species are known to have entered into the Colony mingled with Red Locust swarms in November, and it is to be presumed that some eggs have been laid and a small number of hoppers hatched.

Campaign.

The campaign against the hoppers has proceeded steadily during the month, and very large quantities of poison are being consumed.

Whilst the declared policy of the Government is to defend crops and not to attempt the impossible task of extermination everywhere, the change is more or less nominal, and the campaign is, in practice, as general as in the past, the only areas not included being uninhabited and difficult of access. It has never been possible to operate effectively in such areas.

At the end of the month most districts report that the situation is well in hand, and in two the temporary locust staff has actually been reduced. The farmers generally are reported to be carrying out their part of the campaign satisfactorily.

There is every indication that the main crops of the colony will be saved from the hopper stage.

The principal danger now anticipated is attack by early maturing swarms on late maturing maize, and every effort is, therefore, being made to ensure that hoppers do not mature (i.e. obtain wings) in close proximity to the maize belt farms.

The fact that the winged locusts may attack tobacco and other crops is also not being lost sight of, and it is hoped that no considerable swarms will be allowed to mature in any of the agricultural areas of the colony.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany (Bavaria). — By Ministerial Ordinance of 19 January 1934 it is prescribed that fruit trees which are dead or in bad condition or attacked by diseases or pests so badly that treatment would appear useless must be cut down. Also the witches-broom [*Taphrina cerasi*] on the cherry and any branches which are dead, in bad condition or attacked by Scotylidae must be cut down and destroyed. The trees must be freed from moss and lichen and dead bark. Mistletoe [*Viscum album*] must be removed from fruit trees by cutting it out deeply or by removing the affected branch. Nests of brown-tail moth [*Euproctis chrysorrhoea*] and of 'Baumweissling' [*Aporia crataegi*] must be cut out and burnt. Old fruit trees which are too high to allow of the prescribed treatment must be removed. All these measures must be carried out each year before 15 March. The police authorities will appoint expert persons or committees to see that the regulations are given effect. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. März 1934, Bd. V, Nr. 9, S. 248-249).

South Australia. — The Ministry of Agriculture announces that:—

(1) The plants described in the First Schedule hereto have, by regulation, been declared to be noxious weeds throughout the whole of the State.

(2) The plants described in the Second Schedule have, by regulation, been declared to be noxious weeds to the extent therein specified.

(3) The regulations provide that the time for compliance with any notice to destroy noxious weeds under sections 14 or 28 of the Noxious Weeds Act, 1931, shall be one month.

THE FIRST SCHEDULE.

Botanical Name.	Common Name.
Asclepias fruticosa }	Cotton Bush
Asclepias rotundifolia }	
Asphodelus fistulosus	Wild Onion
Carthamus lanatus	Saffron Thistle
Cenchrus tribuloides	Innocent Weed
Centaurea calcitrapa	Purple Star Thistle
Centaurea solstitialis	Yellow Cockspur
Cirsium arvense	Canada Thistle
Conium maculatum	Hemlock
Cuscuta spp.	Dodder
Datura stramonium	Thorn Apple
Euphorbia terracina	False Caper
Homeria collina }	Cape Tulip
Homeria miniata }	
Hypericum perforatum	St. John's Wort
Marrubium vulgare	Horehound
Reseda luteola	Dyer's Weed (Weld)
Solanum rostratum	Buffalo Burr
Solanum sodomaeum	Apple of Sodom
Xanthium californicum	Californian Burr
Xanthium spinosum	Bathurst Burr

THE SECOND SCHEDULE.

Botanical Name.	Common Name.
Chenopodium album	White Goosefoot (' Fat Hen ')

(Applies to that portion of the State comprising the City of Adelaide and the Waikerie Irrigation Area).

Foeniculum vulgare	Fennel

(Applies to that portion of the State comprising the municipality of Mount Gambier).

Lycium ferocissimum	African Box Thorn

(Applies to the whole of the State, except where grown as a hedge on the 17th March, 1932, and kept trimmed to a width not exceeding in any part 4 ft. 6 in. and to a height not exceeding 7 ft.).

Lepidium draba	Hoary Cress

(Applies to that portion of the State comprising the district council of Tatiara).

Silybum marianum	Variegated Thistle

(Applies to that portion of the State comprising the municipality of Mount Gambier).

(*The South Australian Government Gazette*, Adelaide, February 15, 1934, No. 7, p. 350).

Spain. — By Decree of 11 January 1934 Spanish farmers and stock breeders are informed of the regulations relating to the protection against risks in farming, stock breeding and forestry.

According to the said Decree among the risks which are not insurable are included phytopathological risks (crop diseases and pests). (*Gaceta de Madrid*, Madrid, 13 enero 1934, año CCLXXIII, tomo I, núm. 13, págs. 400 a 404).

Italy. — A Ministerial Decree of 7 February 1934 modifying the special technical regulations for the exportation of citrus fruits, stipulates *inter alia* that the exportation of fruits which are frost damaged, seriously attacked by sooty mould or excessively covered with scale insects is forbidden. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 13 febbraio 1934, anno 75°, n. 36, pp. 703-704).

*** By Ministerial Decree of 28 February 1934 in the commune of Naro, province of Agrigento the rabbit is included until further order among the noxious animals. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 9 marzo 1934, anno 75°. n. 58, p. 1252).

Mexico. — The ' Secretaría de Agricultura y Fomento ' has formed a Biotechnical Institute to work in connection with the Department of ' Fomento Agrícola '. This Institute, which is situated at México, D. F. (Calzada de Ta-

cuba, 295), is intended to carry out biological research as applied to agriculture, animal husbandry, forestry, hunting and fishing.

The eight sections of which the Institute is constituted include one for plant protection (' Sanidad Vegetal '), directed by M. Alfonso Madariaga, agricultural expert.

Greece (1). — By Decree of 10 January 1934 the following regions are declared infected with grape phylloxera :—

(1) The communes of Amorgos, Arkessini and Katapola situated in the island of Amorgos, and the small islands of Kato Koufonissia, Schinousa and Irakleia, which are in the commune of Katapola ; the small islands round the island of Amorgos, namely : Denoussa, Kavos, Nikouria, Petalidi, Gravoussa, Dryma Antikaros, Gougari, Fidoussa, Agrilos, Glaros, Prassoura, Amorgopoula.

(2) The province of Kalambaka in the Department of Trikkala.

(3) The whole province of Grevena.

(4) The whole province of Castoria.

(5) The whole province of Elasson.

The provinces of Trikkala and Karditsa in the Department of Trikkala are declared suspected of infection.

The locality known as ' Valta ' belonging to the village of Palama in the province of Karditsa is declared to be infected.

Northern Rhodesia. — The regulations relating to the importation of plants (Government Notice No. 22 of 2 February 1933) follow closely those in force in Southern Rhodesia since 5 August 1932 [see this *Bulletin*, 1933, No. 2, pp. 33-35]. Distinction is made between (*a*) plants whose importation is forbidden ; (*b*) plants which may be imported with a special permit ; and (*c*) plants which may be freely imported subject to certain precautions. A special part relates to the introduction of plants from the Union of South Africa, Southern Rhodesia and the Belgian Congo. (*Deutsches Handels-Archiv*, Berlin 1934, 88. Jahrg., 1. Märzheft, S. 821-823).

Yugoslavia (2). — By Decree of the Minister of Agriculture, No. 11940/11, dated 24 February 1934, published in the official journal of 6 March 1934, all the provisions of previous Decrees are annulled which relate to:— (1) the importation of plants or plant parts (Decree No. 60376, of 23 September 1931) ; (2) the importation and transit of potatoes (Decree No. 60368, of 23 September 1931) ; and (3) the control of hop sets for importation (Decree No. 40104, of 21 October 1927), together with all modifications of these Decrees. The importation and transit of plants and plant parts are controlled by new regulations.

(1) Communication from the official correspondent of the Institute, Mr. A. Ayoutantis, Chief of the Phytopathological Section of the Ministry of Agriculture, Athens.

(2) Communication from the official correspondent of the Institute, Dr. Mladen Yossifovitch, Professor at the University of Belgrade.

The new Decree relates more particularly to the importation of potatoes, plants and cuttings of apple and pear and apple and pear fruits, which are liable to carry the following dangerous parasites and pests :— *Synchytrium endobioticum, Leptinotarsa decemlineata, Phthorimæa operculella, Aspidiotus perniciosus.*

If these plants or plant parts come from countries in which occurs one of the above named parasites or pests and might harbour it they will be admitted for importation on condition that they are accompanied by a health and origin certificate issued by the competent services of the country of origin. This certificate must be written in the language of the exporting country or in French and must specify :— (1) the place from which the products to be exported originate (the place, commune, district, province, department) ; (2) that the products come neither from a region in which occur (*a*) in the case of the potato, *S. endobioticum, L. decemlineata* or *P. operculella*, (*b*) in the case of plants, cuttings and fruits of apple and pear, *Aspidiotus perniciosus* ; nor from a zone of protection ; (3) that the products transported are free from the above named diseases and pests ; (4) the number of the wagon or the mark, nature and number of packages and the lettering of the seal on the wagon or package ; (5) a declaration from the official agent of the exporting country stating that he has personally inspected the products transported and affixed the seals ; (6) indication of whether the transported products are loose or are contained in packages, which in the latter case must be unused. The products exported must be either in sealed wagons or in sealed unused packages (Art. 5). The certificate must bear tne seal of the official phytopathological establishment and the signature of the inspector of the phytopathological service who has inspected the consignment.

The Yugoslav custom houses are obliged to notify the competent Station for Testing and Control of the arrival of the consignment of these plants or plant parts, forwarding therewith the certificate which accompanies the consignment. The Station will examine the certificate and if it is found to be in order will authorise the customs house to put the consignment at the disposal of the consignee. If, on the other hand, the certificate is found by the Station not to be in order the consignment will be submitted for inspection by one of the phytopathological inspectors and only after such inspection will be put at the disposal of the consignee or, in the case that the expoited products are infected with any one of the above named parasites or pests, will be returned to the consignor. In the latter case a report of the matter will be transmitted to the Ministry of Agriculture.

If the potatoes come from countries in which *S. endobioticum, L. decemlineata* and *P. operculella* have not been found to occur, or if the plants, cuttings and fruits of apple and pear come from countries in which *A. perniciosus* does not occur, consignments of such plants and plant parts must be accompanied by a health certificate containing a statement of the inspector of the phytopathological service of the country of origin to the effect that the transported products are not contaminated by dangerous diseases or pests. This certificate need not be submitted to examination by the Station for Testing and Control and the consignment may be placed immediately at the disposal of the consignee.

If, on the other hand, the consignment is not provided with a health certificate importation will be allowed only after inspection of its contents by an official designated by the competent Yugoslav Station for Testing and Control. If such inspection reveals the presence of parasites or particularly serious pests the consignment will be returned.

The same regulations apply to the importation, of all other plants and plant parts intended for planting (except seeds), coming from any country whatever (health certificate, not requiring previous examination by the Station for Testing and Control ; failing such certificate, examination at the frontier by the Yugoslav Phytopathological Service).

Importation of plants or plant parts intended for consumption, namely fresh vegetables and other garden products, except potatoes, fruits, except apples and pears, and cut flowers, is allowed even if the consignment is not accompanied by a health certificate.

As an exceptional ruling young early potatoes coming from countries in which *S. endobioticum*, *L. decemlineata* and *P. operculella* do not occur may be imported without a health certificate if they are presented at the frontier before 31 May.

The importation of potatoes and plants, cuttings and fruits of apple and pear coming from land belonging to Yugoslav subjects situated along the frontiers within neighbouring countries in which occur any of the above named parasites or pests, is allowed without a health certificate from the country of origin, but after inspection of the consignment at the frontier by an official appointed by the competent Yugoslav Station for Testing and Control.

If, on the other hand, the potatoes and plants, cuttings or fruits of apple and pear come from similar property but situated in a neighbouring country in which the above named parasites and pests are not known to occur, importation is allowed without a health certificate and without further phytopathological inspection at the frontier.

Similar regulations apply to the importation of all other plants or plant parts coming from similar property situated in any of the neighbouring countries (no health certificate nor phytopathological inspection at the frontier required).

Transit of consignments of all plants and plant parts, including fruits, on Yugoslav railways is allowed on condition that the consignments are contained in sealed wagons or in sealed packages. Phytopathological certificates are not obligatory.

RECENT BIBLIOGRAPHY

ABDEL-SALAM, M. M. Damping-off and other allied diseases of lettuce. *The Journal of Pomology and Horticultural Science*, London, 1933, Vol. XI, No. 4, pp. 259-275, figs. 1-4, pls. I-II. Literature cited, pp. 274-275.

[The most important of the fungi isolated from lettuce seedlings affected by the damping-off disease are *Rhizoctonia solani* and *Pythium* sp.].

ABDEL-SALAM, M. M. Botrytis disease of lettuce. *The Journal of Pomology and Horticultural Science*, London, 1934, Vol. XII, No. 1, pp. 15-35, pl. I. Literature cited, pp. 34-35.
[*Botrytis cinerea*].

AILAN, H. H. Notes on recently observed exotic weeds. *The New Zealand Journal of Agriculture*, Wellington, 1934, Vol. 48, No. 1, pp. 42-46, figs. 1-3.
[*Carthamus lanatus, Cirsium palustre, Allium triquetrum*].

ARNAUDI, Carlo, e VENTURELLI, Giovanni. L'azione del radio sui tumori vegetali. *Rivista di Biologia*, Perugia, 1934, vol. XVI, fasc. I, pp. 61-79, tav. I. Opere consultate, pp. 77-78.
[*Bacterium tumefaciens*].

AUSTIN, M. D. Insect and allied pests of cultivated mushroms. II. Laboratory investigations. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 167-171.

BALLARD, Edward. Trapping the Mediterranean fruit fly, *Ceratitis capitata* (Wied.). *Bulletin de la Société Royale Entomologique d'Egypte*, Le Caire, 1933, année 1933, fasc. 1-3, p. 8-15, 1 fig. References, p. 15.

BARTON-WRIGHT, E., and MCBAIN, Alan M. Possible chemical nature of tobacco mosaic virus. *Nature*, London, 1934, Vol. 133, No. 3355, p. 260.

BEAUMONT, A. On the relation between the stage of development of the potato crop and the incidence of blight (*Phytophthora infestans*). *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 23-47. References, p. 46-47.

BEESON, C. F. C. Control measures for termites. *The Indian Forester*, Dehra Dun, U. P., India, 1934, Vol. LX, No. 1, pp. 64-78, pl. 7.

BLANCHARD, Everard E., y CARRERA, Cesar. Causas que originan pérdidas en los cultivos de trigos en el sur de la prov. de Buenos Aires, este y norte de la Pampa. *Boletín Mensual del Ministerio de Agricultura de la Nación*, Buenos Aires, 1933, tomo XXXII, núm. 1, págs. 3 a 10.
[*Ophiobolus graminis, Helminthosporium sativum, Puccinia* spp., *Prosaldius rufus*].

BLUNCK, Hans. Beschädigung von Kartoffelknollen durch die Larve von *Phyllopertha horticola* L. *Anzeiger für Schädlingskunde*, Berlin 1934, X. Jahrg., Heft 2, S. 13-14, Abb. 1-2. Literatur, S. 14.

BONGINI, V. Singolare infestazione di sputacchina (*Philaenus spumarius* L.). *La Difesa delle Piante contro le Malattie ed i Parassiti – Bollettino del Laboratorio Sperimentale* (*R. Osservatorio Regionale*) *di Fitopatologia*, Torino, 1934, anno 11° (XXIX del Bollettino), n. 1, pp. 13-15, 1 fig. Bibliografia, p. 15.
[The Cuckoo Spit Insect was found to damage strawberries under glass].

BREDO, H.-J. Importance de la théorie des phases dans la lutte contre les sauterelles migratrices. *Agriculture et Elevage*, Bruxelles, 1933, 7me année, n° 12, p. 161-163. Bibliographie, p. 163.

BRITON-JONES, H. R., and BAKER, R. E. D. Thread blights in Trinidad. *Tropical Agriculture*, Trinidad, B. W. I., 1934, Vol. XI, No. 3, pp. 55-67, pls. I-IX.
[*Marasmius* and *Corticium* spp.].

BRITON-JONES, H. R., and BAKER, R. E. D. Notes on some other fungous diseases in Trinidad, 1933. *Tropical Agriculture*, Trinidad, B. W. I., 1934, Vol. XI, No. 3, pp. 67-68. Bibliography, p. 68.
[*Septobasidium* sp., *Rhizoctonia solani, Corticium salmonicolor* and *Sclerotium rolfsii* on various cultivated plants].

BRUNER, S. C., and JENKINS, Anna E. Identity and host relations of the Elsinoe of lima bean. *Journal of Agricultural Research*, Washington, D. C., 1933, Vol. 47, No. 10, pp. 783-789, fig. 1.
[*Elsinoe phaseoli* Jenkins n. sp. on *Phaseolus lunatus macrocarpus*. Description of the new species in English].

BUTOVITSCH, Viktor. Om skadeinsekternas ekonomiska betydelse för skogshushållningen. *Svenska Skogsvårdsföreningens Tidskrift*, Stockholm 1934, årg. 32, h. I-II, sid. 1-10. Anförd litteratur, sid. 8.
[In Swedish, with title and summary in German :— ' Über die ökonomische Bedeutung der schädlichen Insekten für die Forstwirtschaft '].

CAMPBELL, A. H. Zone lines in plant tissues. II. The black lines formed by *Armillaria mellea* (Vahl) Quel. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 1-22, figs. 1-4, pls. I-III. References, pp. 20-21.

CARLISLE, P. J. Manufacture, handling, and use of hydrocyanic acid. *Industrial and Engineering Chemistry*, Washington, D. C., 1933, Vol. 25, No. 9, pp. 959-964, figs. 1-5. Literature cited, p. 964.
[Details are given of the properties of liquid hydrocyanic acid and a factory producing it in California is described together with the methods of applying the acid in citrus orchards].

CHAN, Kwai-shang. A Galerucid beetle injurious to cucurbits. *Lingnan Science Journal*, Canton, China, 1934, Vol. 13, No. 1, pp. 103-107, fig. 1.
[*Ceratia orientalis* (?) on *Luffa acutangula*, *L. cylindrica*, *Momordica charantia*, *Cucurbita maxima*, *Melothria indica*, etc.].

CIFERRI, R. Esperienze ed osservazioni sulla « clorosi », sulla « rosetta » e sul « mal del piombo » nutrizionali del pesco. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1933, anno XIII, n. ser., n. 4, pp. 431-536, figg. 1-9, tav. XXII-XXIX. Letteratura citata, pp. 533-535.
[With summary also in English].

CIFERRI, R. La « rosetta » del frassino coltivato nei pescheti rosettati. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1933, anno XIII, n. ser., n. 4, pp. 554-560, figg. 1-3, tav. XXX-XXXI.
[With summary also in English].

CIFERRI, Raffaele. Recentissime vedute intorno al problema delle ruggini dei cereali. *L'Italia Agricola*, Roma, 1934, anno 71, n. 2, pp. 128-139.
[*Puccinia* spp.].

CORDINGLEY, H., GRAINGER, J., PEARSHALL, W. H., and WRIGHT, A. The effect of mosaic disease upon certain metabolic products in the tobacco plant. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 78-89. References, p. 89.

COSTANTIN, J. Variétés de blé résistantes à la rouille. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1934, tome 198, n° 2, p. 130-133.
[*Puccinia graminis*, *P. glumarum*, *P. triticina*].

COSTANTIN, J. Extériorisation des dégénérescences par l'action de l'altitude. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1934, tome 198, n° 12, p. 1095-1097.

CUNNINGHAM, G. H. Effects on apple-trees of lime sulphur following bordeaux mixture. *The New Zealand Journal of Agriculture*, Wellington, 1934, Vol. 48, No. 1, pp. 15-17.

Curzi, M. Il deperimento del piretro nell'isola di Cherso. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1933, anno XIII, n. s., n. 4, pp. 537-553, figg. 1-4.
[With summary also in English. The deterioration of *Chrysanthemum cinerariaefolium* is due to a root rot caused by *Fusarium* and aggravated by the action of Nematoda].

Curzi, M. Il mal del piombo da necrosi e carie del legno in Italia. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1933, anno XIII, n. ser., n. 4, pp. 566-590, figg. 1-3, tav. XXXII. Riferimento bibliografico, pp. 588-590. [With summary also in English].

Dal Pra, Giorgio. La lotta contro le cavallette. *Agricoltura Senese*, Siena, 1934, anno LXX, n. 1, pp. 30-31.

D'Ancona, Umberto, e Nannizzi, Arturo. Osservazioni biologiche sull'*Hyponomeuta padellus* L. *Rivista di Biologia*, Perugia, 1934, vol. XVI, fasc. I, pp. 47-60, figg. 1-5.

Day, W. R., and Peace, T. R. The experimental production and the diagnosis of frost injury on forest trees. *Oxford Forestry Memoirs*, No. 16, 1934, Oxford, 1934, 60 pp., 5 graphs, 53 figs. Bibliography, pp. 55-57.

Della Beffa, G. Note riassuntive sui parassiti e la patologia dei pioppi. I. Gli insetti parassiti. *La Difesa delle Piante contro le Malattie ed i Parassiti – Bollettino del Laboratorio Sperimentale* (*Regio Osservatorio Regionale*) *di Fitopatologia*, Torino, 1933, anno 10° (XXVIII del Bollettino), n. 6, pp. 107-113; 1934, anno 11° (XXIX del Bollettino), n. 1, pp. 1-12.

Di Cairano, Vitale. La lotta contro la mosca della frutta. Governo della Tripolitania. Direzione Affari Economici e Colonizzazione. *Notiziario Economico*, Tripoli, 1933, anno VI, n. 7-8, pp. 28-30, 1 fig. in *Tripolitania*, Tripoli, 1933, anno III, n. 7-8.
[*Ceratitis capitata*].

Doolittle, S. P., and Wellman, F. L. Commelina nudiflora, a monocotyledonous host of a celery mosaic in Florida. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 48-61, figs. 1-3. Literature cited, pp. 60-61.

Ducomet, V., et Diehl, R. La culture de la pomme de terre en montagne et les maladies de dégénérescence. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1934, tome XX, n° 7, pp. 228-238.

Ferraris, T. Piante infeste alle coltivazioni. La galinsoga. *Giornale di Agricoltura della Domenica*, Roma, 1934, anno XLIV, n. 1, p. 7, 5 figg.
[*Galinsoga parviflora*].

Finkelstein, Alexis. Derriswurzel und Rotenon. *Pflanzenbau*, Leipzig 1934, 10. Jahrg., Heft 7, S. 271-283.

Forsslund, Karl-Herman. Tallbockens (*Monochamus sutor* L.) uppträdande på brandfält inorra Sverige sommaren 1933. *Svenska Skogsvårdsföreningens Tidskrift*, Stockholm 1934, årg. 32, h. I-II, sid. 23-38, fig. 1-6. Anförd litteratur, sid. 37.
[In Swedish, with title and summary in German :— ' Das Auftreten des Schusterbocks (*Monochamus sutor* L.) auf Brandflächen in Nordschweden im Sommer 1933 '].

Francis, C. B. A note on the sugarcane leaf hopper (*Pyrilla*) in South Arcot District. *The Madras Agricultural Journal*, Coimbatore, S. India, 1933, Vol. XXI, No. 12, pp. 510-514.

FRICKHINGER, H. W. Gase in der Schädlingsbekämpfung. Eine Zusammenfassung für Amtsärzte, Desinfektoren, Hygieniker, Kommunalverwaltungen usw. (Flugschriften der Deutschen Gesellschaft für angewandte Entomologie. Nr. 13). Berlin, Verlagsbuchhandlung Paul Parey, 1933, 87 S., 38 Abb. Literaturübersicht, S. 69-84.

FRON. Sur la destruction de la renoncule des champs dans les céréales. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1933, tome XIX, nº 25, pp. 892-898.
[*Ranunculus arvensis*].

FRON, G., et BERTRAND, R. Contribution à l'étude de l'influence des chlorates sur la végétation. *Annales Agronomiques*, Paris, 1934, 4e année, nº 1, p. 1-25, fig. 1-8. Bibliographie (à partir de 1928), p. 24-25.

GINI LACORTE, Carlos. Estudio sobre el sulfuro de calcio. *Boletín Mensual del Ministerio de Agricultura de la Nación*, Buenos Aires, 1933, tomo XXXII, núm. 3, págs. 455 a 464.

GOSSET, A., MAGROU, Joseph, et TCHAKIRIAN, A. Action de divers élements sur les tumeurs bactériennes du *Pelargonium*. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1934, tome 198, nº 12, p. 1097-1100.
[*Bacterium tumefaciens*].

GRATIA, André. Pluralité, hétérogénéité, autonomie antigéniques des virus des plantes et des bactériophages. *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées*, Paris, 1933, tome CXIV, nº 39, p. 1382-1383.

GURAN, I. Observaţiuni asupra atacului Scolytidaelor ulmului. *Revista Pădurilor*, Bucureşti 1933, anul XLV, nr. 4, pag. 227-236, fig. 1-7.
[In Rumanian, with title and summary in French and German :— ' Observations sur l'attaque des scolytides de l'orme '. — ' Betrachtungen über der Befall von Ulmen durch Scotyliden '].

HANNA, W. F., and POPP, W. Bunt infection of springwheat by soil-borne spores. *Scientific Agriculture*, Ottawa, Canada, 1934, Vol. XIV, No. 5, pp. 257-258. [With title and summary also in French. *Tilletia tritici*].

HEMPEL, Adolpho. O combate á broca do café por medio da vespa de Uganda. *Boletim de Agricultura, Zootecnia e Veterinaria*, Belo-Horizonte, 1933, ano VI, num. 9, pags. 551-555, 1 fig.
[*Prorops nasuta* parasite of *Stephanoderes hampei*].

HILGENDORFF, G. Über Pyrethrum und pyrethrinhaltige Mittel. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1934, 14. Jahrg., Nr. 2, S. 11-13, 1 Abb.
[*Chrysanthemum cinerariaefolium*].

HIRAYAMA, Shigekatsu. Studies on the anaerobiosis of plant disease fungi. I. A comparative study on the anaerobic respiration of the fungi. *Memoirs of the College of Agriculture, Kyoto Imperial University, No. 30 (Phytopathological Series No. 7)*, Kyoto, Japan, 1934, pp. 1-17, figs. 1-2. Literature cited, p. 17.

IVANOFF, S. S. Stewart's wilt disease of corn, with emphasis on the life history of Phytomonas stewarti in relation to pathogenesis. *Journal of Agricultural Research*, Washington, D. C., 1933, Vol. 47, No. 10, pp. 749-770, figs. 1-2, pls. 1-3. Literature cited, pp. 769-770.

IVANOFF, S. S. A plant inoculator. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 74-76, fig. 1.

JACENTKOVSKÝ, D. Výskyt bekyně velkohlavé (Liparis dispar L.) v polesí Rafajna (Podk. Rus). *Lesnická Práce*, Písek 1934, roč. XIII, čís. 1, str. 27-36.
[In Czech, with title and summary in German :— ' Das Auftreten des grossen Schwammspinners (Liparis dispar L.) im Reviere Rafajna '].

JACK, Rupert W. Locust invasion, 1932-34. Monthly report No. 13. December, 1933. *The Rhodesia Agricultural Journal*, Salisbury, S. Rhodesia, 1934, Vol. XXXI, No. 2, pp. 135-136.
[*Nomadacris septemfasciata, Locusta migratoria migratorioides*].

JANCKE, O. Gespinstmotten als Grosschädlinge an Obstbäumen. *Arbeiten aus der Biologischen Reichsanstalt für Land- und Fortstwirtschaft, Berlin-Dahlem*, Berlin 1933, XX. Bd., Heft 4, S. 431-441, Abb. 1-5. Schrifttum, S. 441.
[*Hyponomeuta* spp.].

JANCKE, O., and BÖHMEL, W. Beitrag zur Biologie und Bekämpfung der Kirschfliege. *Arbeiten aus der Biologischen Reichsanstalt für Land- und Fortstwirtschaft, Berlin-Dahlem*, Berlin 1933, XX. Bd., Heft 4, S. 443-456, Abb. 1-2. Schrifttum, S. 456.
[*Rhagoletis cerasi*].

JARV, S. G. Insect and allied pests of cultivated mushrooms. I. The incidence of attacks and their relation to growing practice. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 162-167.

JENKINS, Anna E. A species of Sphaceloma on avocado. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 84-85.
[*Sphaceloma perseae* n. sp. on *Persea americana*. Description in English and in Latin].

JOHNSON, Thorvaldur. A tropic response in germ tubes of urediospores of Puccinia graminis tritici. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 80-82, fig. 1.

KALSHOVEN, L. G. E. De voedsterplant van Pyrausta machaeralis Walk. (" the teakleaf skeletonizer ") of Java. *Tectona*, Buitenzorg 1934, deel XXVII, afl. 1, blz. 71-75.
[In Dutch, with title and summary in English :— ' The foodplant of *Pyrausta machaeralis* Wlk. in Java '. – Injurious to *Tectona grandis*].

KAUFFMANN, O. Der glanzstreifige Schildkäfer (Cassida nobilis L.) nebst einigen Bemerkungen über den nebligen Schildkäfer (Cassida nebulosa L.). *Arbeiten aus der Biologischen Reichsanstalt für Land-und Forstwirtschaft, Berlin-Dahlem*, Berlin 1933, XX. Bd., Heft 4, S. 457-516, Abb. 1-41. Schriftenverzeichnis, S. 516.

KLEMM, M. Ernteschäden durch Schwarzrost in Deutschland im Jahre 1932. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1934, 14. Jahrg., Nr. 2, S. 9-11, 1 Karte.
[*Puccinia graminis*].

KOBENDZA, Roman. Zniekształcenia sosny pod wpływem owadów. *Sylwan*, Lwów 1933, roč. LI, nr. 10-12, str. 294-304, ryc. 1-6.
[In Polish, with title and summary in German :— ' Verunstaltung der Kiefern durch Insekten '].

KÖCK, Gustav. Pflanzenschutz im Klein-und Siedlergarten. Ein Handbuch für Schrebergärtner, Siedler und Kleingärtner zur richtigen Erkennung und Bekämpfung der wichtigsten und häufigsten Krankheiten und Schädlinge ihrer Kulturpflanzen. (Scholle-Bücherei. 111. Bändchen). Wien, Scholle-Verlag, Buchhandlungs – Gesellschaft m. b. H., 1934, 78 S., 87 Abb.

[This little book is intended to help in the identification of the diseases and pests of garden plants and to indicate suitable methods of control. Analytical tables based on the symptoms are given in the 3 chapters dealing respectively with fruit trees and other fruit plants, vegetables, and ornamental plants. The identification of the causal agent is based entirely on plainly visible symptoms, leaving out of account all details not readily detected, and the descriptions are made clear with the help of numerous figures in the text. Each chapter is followed by an account of the means and methods of control, taking into consideration the technical and economic possibilities available in a small garden].

Köck, Gustav. Ueber einige bei forstlichen Rauchschadenerhebungen häufig begangene Fehler und ihre Vermeidung. *Zetschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1934, 44. Bd., Heft 2, S. 81-91.

Krieg, H. Rotenon und seine Bedeutung für den Pflanzenschutz. *Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt., Jena 1934, 89. Bd., Nr. 21/24, S. 475-476.

Krishna Ayyar, P. N. Further experiments on the root-gall nematode, *Heterodera marioni* (Cornu) Goodey in South India. *The Indian Journal of Agricultural Science*, Delhi, 1934, Vol. III (1933), Pt. VI, pp. 1064-1071, pls. LXXIX-LXXX. References, p. 1071.

Krzysik, Franciszek. Szkody mrozowe w drzewostanach bukowych. Część III. *Sylwan*, Lwów 1933, roč. LI, nr. 10-12, str. 305-316, ryc. 1-7.
[In Polish, with title also in German :— ' Ueber die Frostschäden in Rotbuchenbestanden. III. Teil '].

La Banca, Alfonso. El piretro (*Chrysanthemum cinerariaefolium*). *Boletín Mensual del Ministerio de Agricultura de la Nación*, Buenos Aires, 1933, tomo XXXII, núm. 1, págs. 55 a 66, 2 figs. Bibliografía, pág. 66.

Lachmund, H. G. Mode of entrance and periods in the life cycle of Cronartium ribicola on Pinus monticola. *Journal of Agricultural Research*, Washington, D. C., 1933, Vol. 47, No. 10, pp. 791-805, fig. 1. Literature cited, pp. 804-805.

Lagerberg, Torsten. *Phomopsis Pseudotsugae* Wilson, en i Sverige obeaktad barrträdsparasit. *Svenska Skogsvårdsföreningens Tidskrift*, Stockholm 1934, årg. 32, h. I-II, sid. 71-86, fig. 1-4. Citerad litteratur, sid. 85.
[In Swedish, with title and summary in English :— ' *Phomopsis Pseudotsugae* Wilson, a parasite on conifers unregarded in Sweden '].

Lever, R. J. A. W. Entomology and agriculture in the British Solomon Islands. *Tropical Agriculture*, Trinidad, B. W. I., 1934, Vol. XI, No. 2, pp. 36-37. References, p. 37.

Lindinger, L. Was ist der richtige Namen von Lecanium corni Marchal ? *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1934, 44. Bd., Heft 2, S. 76-80.
[*Palaeolecanium xylostei* (Schr.) comb. nov.].

Link, George K. K., and Wilcox, Hazel W. Precipitin-ring test applied to fungi. II. *The Botanical Gazette*, Chicago, Illinois, U. S. A., 1933, Vol. XCV, No. 1, pp. 1-34. Literature cited, pp. 33-34.

Loewel, E. L. Die Auswirkung der Kupferschäden zu den einzelnen Spritzzeiten. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1934, 44. Bd., Heft 2, S. 71-76, 1 Abb.

MacDaniels, L. H., and Burrell, A. B. The effect of sulphur fungicides, applied during the bloom, on the set of apple fruits. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 144-150.

Malenotti, E. Arvicole sotto la neve. *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1934, anno 80° e 60°, n. 2, pp. 39-43, figg. 1-3.
[*Microtus arvalis*].

Malenotti, Ettore. Esperienze contro i nemici del melo. *L'Italia Agricola*, Roma, 1934, anno 71, n. 1, pp. 21-38, figg. 1-15. Bibliografia, p. 38.
[*Cydia pomonella, Stephanitis pyri, Cemiostoma scitella*].

Marchionatto, Juan B. Una epizootia en la langosta voladora. *Boletín Mensual del Ministerio de Agricultura de la Nación*, Buenos Aires, 1933, tomo XXXII, núm. 1, págs. 53 y 54.
[*Coccobacillus acridiorum* on *Schistocerca paranensis*].

Marchionatto, Juan B., Vallega, José, Fresa Roberto, y Chaudet, Augusto. Acción langosticida de las emulsiones jabonosas. *Boletín Mensual del Ministerio de Agricultura de la Nación*, Buenos Aires, 1933, tomo XXXII, núm. 1, págs. 11 a 21.

Masera, Enrico. Il " Bacillus prodigiosus Flügge " nella patologia del baco da seta e degli insetti. *Bollettino dell'Istituto Sieroterapico Milanese*, Milano, 1934, vol. XIII, fasc. I, pp. 52-56. Bibliografia, p. 56.
[With summary in French].

Maublanc, A., et Roger. La phthiriose du caféier. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1934, tome 198, n° 4, p. 391-392.
[Disease observed in Cameroon. The writers were struck by the resemblance between the conidia borne on the mycelial web surrounding the roots of the coffee and the fruit-bodies of *Bornetina corium* described on the vine in Palestine].

Mauroy, J. La lutte contre le Phlyctaenodes sticticalis en Roumanie. *Annales de Gembloux*, Auderghem, 1934, 40e année, 2e livr., p. 73-76.

Mayné, R., et Ghesquière, J. Hémiptères nuisibles aux végétaux du Congo belge. *Annales de Gembloux*, Auderghem, 1934, 40e année, 1e livr., p. 3-41, fig. 1-11, pl. I-X.
[List of 273 species of Hemiptera living on upwards of 150 wild or cultivated plants in the Belgian Congo].

McKenny Hughes, A. W. Aphides as vectors of " breaking " in tulips. II. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 112-119, pl. V. References, p. 119.

Mehta, K. C. Rusts of wheat and barley in India. A study of their annual recurrence, life-histories and physiologic forms. *The Indian Journal of Agricultural Science*, Delhi, 1934, Vol. III (1933), Pt. VI, pp. 939-962, pl. LXXV, 1 map. References, p. 952.
[*Puccinia glumarum, P. triticina, P. graminis, P. simplex*].

Menozzi, Carlo. Rilievi ed appunti entomologici sulla campagna saccarifera 1933. *L'Industria Saccarifera Italiana*, Genova, 1934, anno XXVII, n. 1, pp. 1-4, 1 fig.
[*Cleonus mendicus, C. luigionii, Cassida vittata, C. nobilis, Pegomyia hyoscyami, Chaetocnema tibialis, Lixus junci, L. scabricollis, Cebrio* sp., *Agriotes litigiosus, Euxoa segetum, Tetranychus* sp. on sugar beet in Italy during 1933].

Monte, Oscar. Um novo parasita da broca da cana (Diatraea saccharalis, F.) e considerações sôbre esta broca. *Boletim de Agricultura, Zootecnia e Veterinaria*, Belo-Horizonte, 1933. ano VI, num. 9, pags. 559-563, 3 figs.
[*Metagonistylum minense*].

MONTELL, L. Les insectes nuisibles au cotonnier en Afrique équatoriale française. *L'Agronomie Coloniale*, Paris, 1934, 23e année, nº 193, p. 11-18.
[*Locusta migratoria migratorioides, Acanthacris ruficornis, Brachytrypes membranaceus, Sternocera klugi* var. *zechiana, Psiloptera* (*Damarsita*) *umbrosa, Ps.* (*Lampestis*) *funesta, Sphenoptera solida, S. longiuscula* (?), *S. trilineata, Mylabris vestita, Acrocercops bifasciata, Sylepta derogata, Glyphodes indica, Earias insulana, E. biplaga, Heliothis obsoleta, Prodenia litura, Negeta luminosa, Azygophlebs boisduvalii, Naronia signifera, Acontia graellsii, Brithys* (*Glottula*) *pancratii, Diparopsis castanea, Chlorita facialis* (?), *Anoplocnemis curvipes, Dysdercus superstitiosus, D. nigrofasciatus, Adontopus sexpunctatus, Oxycarenus hyalinipennis, Aphis gossypii*].

MONTICELLI, F. Effetti della scarica elettrica sulla vite. *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1934, anno 80º e 60º, n. 2, pp. 44-47, figg. 1-2.

MOORE, M. H. Spraying and dusting experiments on the control of apple scab (*Venturia inaequalis*) and apple mildew (*Podosphaera leucotricha*) at East Malling in 1931-32. *The Journal of Pomology and Horticultural Science*, London, 1934, Vol. XII, No. 1, pp. 57-79, figs. I-VII. References, pp. 78-79.

MUNERATI, Ottavio. Ancora in tema di cuscuta. *Giornale di Agricoltura della Domenica*, Roma, 1934, anno XLIV, n. 7, pp. 61-62, 2 figg.
[*Cuscuta epithymum, C. pentagona*].

MURPHY, Paul A., and MCKAY, Robert. Tests of certain dusts and ready-made sprays for the control of potato blight in comparison with Burgundy mixture. *Journal of the Department of Agriculture*, Dublin, 1933, Vol. XXXII, No. 1, pp. 30-48, 2 pls.
[*Phytophthora infestans*].

NEWTON, H. C. F. On the biology of *Psylliodes hyosciami* Linn. (Chrysomelidae, Coleoptera), the henbane flea-beetle, with descriptions of the larval stages. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 153-161, figs. 1-3, pls. VIII-IX. References, pp. 160-161.

NICHOLLS, H. M. The blue flea-beetle. *The Tasmanian Journal of Agriculture*, Hobart, 1934, Vol. V, No. 1, pp. 18-19.
[*Haltica pagana*].

NIEVES, Raimundo. La caries o carbón hediondo del trigo. *Boletín Mensual del Ministerio de Agricultura de la Nación*, Buenos Aires, 1933, tomo XXXII, núm. 3, págs. 397 a 411, figs. 1-3.
[*Tilletia tritici*].

OCFEMIA, Gerardo Offimaria. An insect vector of the Fiji disease of sugar cane. *American Journal of Botany*, Lancaster, Pa., 1934, Vol. 21, No. 3, pp. 113-120, fig. 1, pl. 1. Literature cited, p. 120.
[*Perkinsiella vastatrix*].

PAILLOT, A. Un nouveau type de maladie à ultravirus chez les insectes. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1934, tome 198, nº 2, p. 204-205.
[On *Agrotis segetum*].

PALMITER, D. H. Variability in monoconidial cultures of Venturia inaequalis. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 22-47, figs. 1-3. Literature cited, pp. 46-47.

PARKER, J. R., SHOTWELL, R. L., and MORTON, F. A. The use of oil in grasshopper baits. A preliminary report. *Journal of Economic Entomology*, Geneva, N. Y., 1934, Vol. 27, No. 1, pp. 89-96.

PAULSEN, Federico. Storia della invasione fillosserica e ricostituzione dei vigneti in Italia. *Nuovi Annali dell'Agricoltura*, Roma, 1933, anno XIII, n. 3-4, pp. 153-198.
[*Phylloxera vastatrix*].

PETIT, A. Résultats expérimentaux sur la préparation des céréales contre les parasites cryptogamiques, en Tunisie. *Revue de Pathologie Végétale et d'Entomologie Agricole*, Paris, 1933, tome XX, fasc. 6-7, p. 210-260.
[The most serious diseases are those caused by the Ustilaginales and the Uredinales].

PETRI, L. Sopra la causa dell'arricciamento (court-noué) della vite secondo Viala e Marsais. *Rendiconti delle sedute della Reale Accademia Nazionale dei Lincei*, Classe di Scienze fisiche, matematiche e naturali, Roma, 1934, vol. XIX, fasc. 3, pp. 129-134.
[The writer is extremely doubtful whether *Pumilus medullae* Viala and Marsais (see this *Bulletin*, 1934, No. 3, p. 70) is the real cause of the hereditary ' court-noué ' of the vine].

PIERCE, Walter H. Viroses of the bean. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 87-115, figs. 1-5. Literature cited, pp. 114-115.

PUECHER PASSAVALLI, Luigi. Sulla " spaccatura delle mele " dovuta ad elementi meteorici. *Bullettino della R. Società Toscana di Orticultura*, Firenze, 1934, anno LIX, n. 1-2, pp. 13-16, figg. 1-2.

RIVAS TAGLE, Antonino. Enfermedades transmisibles por la semilla, en el cultivo del maíz. *Irrigación en México*, México, D. F., 1933, vol. VII, núm. 5, págs. 421 a 424.

RÖSCH, F. Schädlingsbekämpfung im Obstbau und die Bienenzucht. *Landwirtschaftliche Fachpresse für die Tschechoslowakei*, Tetschen 1933, 11. Jahrg., Nr. 51, S. 309.

RUGGLES, A. G. Three years work against grasshoppers in Minnesota. *Journal of Economic Entomology*, Geneva, N. Y., 1934, Vol. 27, No. 1, pp. 96-101, 4 maps.

SAMOGGIA, Arrigo. La lotta contro il *Dociostaurus maroccanus* Thnb. nella provincia di Roma nel 1933. *Nuovi Annali dell'Agricoltura*, Roma, 1933, vol. XIII, n. 3-4, pp. 267-282, figg. 1-5.

SAMUEL, Geoffrey. The movement of tobacco mosaic virus within the plant. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 90-111, figs. 1-4, pl. IV. References, pp. 110-111.

SĂVULESCU, Tr., et RAYSS, T. Troisième contribution à la connaissance des Péronosporacées de Roumanie. *Annales Mycologici*, Berlin 1934, Vol. XXXII, No. 1/2, S. 37-51, Fig. 1-12.
[List of 51 species. Diagnoses are given of the following new species :— *Peronospora jaczewskii* on *Gypsophila muralis* ; *P. cerastii-brachypetali* on *Cerastium brachypetalum* ; *P. rosae-gallicae* on *Rosa gallica* ; *P. lathyri-hirsuti* on *Lathyrus hirsutus*].

SCHULTZ, E. S., CLARK, C. F., BONDE, Reiner, RALEIGH, W. P., and STEVENSON, F. J. Resistance of potato to mosaic and other virus diseases. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 116-132. Literature cited, p. 132.

SERVAZZI, Ottone. Su alcune Pestalotia parassite facoltative di piante ornamentali. *La Difesa delle Piante contro le Malattie ed i Parassiti – Bollettino del Laboratorio Sperimentale (R. Osservatorio Regionale) di Fitopatologia*, Torino, 1934, anno 11° (XXIX del Bollettino), n. 1, pp. 16-35, figg. 1-4. Bibliografia, pp. 34-35.

[*Pestalotia vermiformis* on *Arbutus unedo* ; *P. macrotricha*, *P. rhododendri* on *Rhododendron* spp. ; *P. funerea*, *P. macrochaeta*, *P. micheneri* on *Araucaria* spp. ; *P. conspicua* n. sp. on *Stanhopea tigrina* ; *P. microspora* on *S. oculata* ; *P. clusiae* on *Cymbidium lowianum*. Description of the new species in Italian and Latin].

SIBILIA, C. Sulla costituzione biologica della *Puccinia triticina* Erikss. in Italia. *Rendiconti delle sedute della Reale Accademia Nazionale dei Lincei*, Classe di Scienze fisiche, matematiche e naturali, Roma, 1934, vol. XIX, fasc. 1, pp. 53-55.

SIBILIA, Cesare. Ulteriori notizie sulla resistenza dell' « Ulmus pumila » a « Ceratostomella Ulmi » Buis. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1933, anno XIII, n. s., n. 4, pp. 561-565, 1 fig.
[With summary in English].

SIBILIA, Cesare. La malattia della defogliazione della « Pseudotsuga » da « Rhabdocline pseudotsugae » Syd. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1933, anno XIII, n. s., n. 4, pp. 591-600.
[At the present time this disease occurs in the following European countries :— England, Scotland, Denmark, Germany and the Netherlands].

SMITH, Glenn M., and TROST, John F. Diplodia ear rot in inbred and hybrid strains of sweet corn. *Phytopathology*, Lancaster, Pa, 1934, Vol. 24, No. 2, pp. 151-157, figs. 1-2. Literature cited, p. 157.
[*Diplodia zeae*].

SNYDER, William C. Pod deformation of mosaic-infected peas. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 78-80, fig. 1.

SPESSIVTSEFF, Paul. Zur Lebensweise des schwarzen Fichtenbastkäfers (*Hylastes cunicularius* Er.). *Svenska Skogsvårdsföreningens Tidskrift*, Stockholm 1934, arg. 32, h. I-II, sid. 207-220, fig. 1-6. Literaturverzeichnis, sid. 219.
[With title and summary in Swedish].

SPEYER, E. R. Some common species of the genus *Thrips* (Thysanoptera). *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 120-152, figs. 1-9, pls. VI-VII. References, p. 152.

SPRAGUE, Roderick. A physiologic form of Septoria tritici on oats. *Phytopathology*, Lancaster, Pa., 1934, Vol.24, No. 2, pp. 133-143, figs. 1-2. Literature cited, pp. 142-143.

SPRAGUE, Roderick. The relative importance of Cercosporella herpotrichoides and of Leptosphaeria herpotrichoides as parasites of winter cereals. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 167-168.

STANTON, T. R., MURPHY, H. C., COFFMAN, F. A., and HUMPHREY, H. B. Development of oats resistant to smuts and rusts. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 165-167.
[*Ustilago avenae*, *U. levis*, *Puccinia coronata avenae*, *P. graminis avenae*].

STAPP, C. Über die bakterielle Ursache einer Blattfleckenkrankheit und Fruchtfäule der Gurken in Deutschland. *Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt., Jena 1934, 89. Bd., Nr. 17/20, S. 377-386, Abb. 1-7. Literatur, S. 386.
[*Pseudomonas lachrymans*].

STEINER, G., and BUHRER, Edna M. Paraphelenchus maupasi attacks hyacinth bulbs. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 163-164, fig. 1.

STEINER, G., and BUHRER, Edna M. Disease symptoms produced by Anguillulina pratensis in yams. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 164-165, fig. 1.

STEINER, G., BUHRER, Edna M., and RHOADS, Arthur S. Giant galls caused by the root-knot nematode. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 161-163, fig. 1.
[*Heterodera marioni* on *Thunbergia laurifolia*, *T. grandiflora*, *Rheum rhaponticum* and *Begonia* sp.].

STEVENS, Neil E. Losses from potato late blight in 1885 and 1886. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 76-78, fig. 1.
[*Phytophthora infestans*].

SUTER, P. La lutte contre la cochenille du poirier (Epidiaspis piricola). *Revue Horticole Suisse*, Genève, 1934, 7e année, nº 3, p. 52-55, 3 fig.

SYDOW, H. Cronartium ribicola : zur Autorfrage des Pilzes. *Annales Mycologici*, Berlin 1934, Vol. XXXII, No. 1/2, S. 115-117.
[The *Cronartium* occurring on *Ribes* is to be named *Cr. ribicola* J. C. Fischer].

TAIROFF, Basile. Le phylloxéra et la reconstitution du vignoble en U. R. S. S. *Revue de Viticulture*, Paris, 1934, 41e année, tome LXXX, nº 2062, p. 5-10.
[*Phylloxera vastatrix*].

TAKAHASHI, Ryoichi. A new whitefly from China (Aleyrodidae, Homoptera). *Lingnan Science Journal*, Canton, China, 1934, Vol. 13, No. 1, pp. 137-141, fig. A.
[*Bemisia yanagicola* n. sp. on *Salix* sp. Description in English].

TAUBENHAUS, J. J., and EZEKIEL, Walter N. Fusarium wilt and corn rot of freesias. *The Botanical Gazette*, Chicago, Illinois, U. S. A., 1933, Vol. XCV, No. 1, pp. 128-142, figs. 1-25.
[*Fusarium* spp.].

TORO, Rafael A., und CHARDON, Carlos E. Über einige neue oder interessante Pilze des nordöstlichen Kolumbien. *Annales Mycologici*, Berlin 1934, Vol. XXXII, No. 1/2, S. 110-114.
[List of 17 species, 12 of which are described as new to science].

TRÄGÅRDH, Ivar. Om primära och sekundära skogsinsekter. *Svenska Skogsvårdsföreningens Tidskrift*, Stockholm 1934, årg. 32, h. I-II, sid. 275-290, fig. 1. Anförd litteratur, sid. 286.
[In Swedish, with title and summary in German :— ' Über primäre und sekundäre Fortschädlinge '].

TREDICI, D. Sopra una malattia dell'olivo. (Nota preventiva). *Agricoltura Senese*, Siena, 1934, anno LXX, n. 1, pp. 20-21.
[*Cercospora cladosporioides*].

TRINCHIERI, Giulio. Intorno alla presente diffusione d'*Aspidiotus perniciosus* in Europa. *Bollettino della Società Entomologica Italiana*, Genova, 1934, vol. LXVI, n. 1-2, pp. 20-21.
[Referring to the same works quoted by Mr. C. P. van der Merwe (*Farming in South Africa*, Pretoria, 1933, Vol. VIII, No. 92, p. 426) in his reply to the writer's previous note (see this *Bulletin*, 1933, No. 10, p. 240), the latter proves conclusively that the San José scale (*A. perniciosus*) has never yet been recorded in France or Italy].

TRUMBOWER, John A. Control of elm leaf spot in nurseries. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 1, pp. 62-73, figs. 1-3.
[*Gnomonia ulmea*, *Gloeosporium ulmicolum* and *Gl. inconspicuum* on *Ulmus americana*].

UICHANCO, Leopoldo B., and CAPCO, Santiago R. Effect of various methods of storing corn on the degree of damage due to weevils. *The Philippine Agriculturist*, Laguna, P. I., 1934, Vol. XXII, No. 9, pp. 653-672, figs. 1-2, 1 chart. Literature cited, pp. 667-668.
[*Calandra oryzae*].

UICHANCO, Virginia B. A study of three species of Philippine Derris. *University of the Philippines. Natural and Applied Science Bulletin*, Manila, 1933, Vol. III, No. 2, pp. 129-239, pls. I-VI, 1 map. Bibliography. Supplement to Roark's digest of the literature of Derris (Deguelia) species used as insecticides, 1747-1931, pp. 215-234.
[*Derris elliptica*, *D. philippinensis* and *Derris* sp.?].

VENKATA RAO, M. G. A preliminary note on the leaf-curl mosaic disease of sandal. *The Indian Forester*, Dehra Dun, U. P., India, 1933, Vol. LIX, No. 12, pp. 772-777, pls. 36-37. Literature cited, p. 776.

VERESCEAGHIN, B. Les ennemis de la vigne et les moyens de les combattre. *Revue de Viticulture*, Paris, 1934, 41e année, tome LXXX, nº 2064, p. 37-44; nº 2065, p. 60-62.

VERPLANCKE, G. Hôtes nouveaux des maladies à virus filtrants de la betterave. *Bulletin de la Société Royale de Botanique de Belgique*, Bruxelles, 1933, tome LXV, fasc. 2, p. 137-147.

WALKER, J. C. Production of cabbage seed free from Phoma lingam and Bacterium campestre. *Phytopathology*, Lancaster, Pa., 1934, Vol. 24, No. 2, pp. 158-160.

WALTER, Marta. Septoria-Blattfleckenkrankheit an der Pfefferminze. *Heil- und Gewürz - Pflanzen*, Freising - München 1933, XV. Bd., Lief. 3, S. 93-94, 1 Abb.
[*Septoria menthae* on *Mentha piperita*].

WARDLAW, C. W. Banana diseases, VI. The nature and occurrence of pitting disease and fruit spots. *Tropical Agriculture*, Trinidad, B. W. I., 1934, Vol. XI, No. 1, pp. 8-13, figs. 1-6. References, p. 13.
[*Piricularia grisea*, *Helminthosporium torulosum*, *Gloeosporium musarum*, etc.]

WHITEHEAD, T. The physiology of potato leaf-roll. I. On the respiration of healthy and leaf-roll infected potatoes. *The Annals of Applied Biology*, London, 1934, Vol. XXI, No. 1, pp. 48-77, figs. 1-20. References, p. 73.

YEUNG, K. C. The life history of the tortoise beetle, Metriona circumdata Hbst. (Coleoptera, Cassididae). *Lingnan Science Journal*, Canton, China, 1934, Vol. 13, No. 1, pp. 143-162, pls. 11-12. References cited, pp. 161-162.
[Injurious to *Ipomoea* spp.].

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